

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method for determining the key of an audio signal, the method comprising the steps of:

.....  
receiving an audio signal;

for each of a plurality of signal portions of the audio

5 signal, analyzing the signal portion to identify a musical note, and where at least one musical note is identified:

determining a strength associated with the or each musical note; and

generating a data record containing the identity  
10 of the or each musical note, the strength associated with the or each musical note and the identity of the portion;

for each of the plurality of data records, ignoring the strength associated with an identified musical note where said strength is less than a predetermined fraction of the maximum  
15 strength associated with any identified musical note contained within the data records;

determining a first note from the identified musical notes in the plurality of data records as a function of their respective strengths;

20 selecting at least a second and a third note from the identified musical notes in the plurality of data records as a function of the first note; and

determining the key based on a comparison of by comparing  
the respective strengths of the at least second and third notes;  
and  
outputting a signal representing the determined key.

2. (Previously Presented) The method as claimed in Claim 1,  
wherein each signal portion is the same size.

3. (Previously Presented) The method as claimed in Claim 1,  
wherein each signal portion encompasses the same length of time.

4. (Previously Presented) The method as claimed in Claim 1,  
wherein the size of the signal portion is a function of the tempo  
of the audio signal.

5. (Previously Presented) The method as claimed in claim 1,  
wherein the signal portions are contiguous.

6. (Previously Presented) The method as claimed in claim 1,  
wherein the predetermined fraction is determined in dependence on  
the content of the audio signal.

7. (Previously Presented) The method as claimed in claim 1,  
wherein the predetermined fraction lies in the range of one tenth  
to one half.

8. (Previously Presented) The method as claimed in Claim 7, wherein the predetermined fraction is one seventh.

9. (Previously Presented) The method as claimed in claim 1, wherein the step of analyzing the signal portion to identify a musical note comprises the steps of:

converting the signal portion to a frequency domain

5 representation;

subdividing the frequency domain representation into a plurality of octaves;

for each octave containing a maximum amplitude:

determining a frequency value at the maximum

10 amplitude; and

selecting a note name of a musical scale in dependence on the frequency value; and

identifying a musical note in dependence on the same note name being selected in more than one octave.

10. (Previously Presented) The method as claimed in Claim 9, wherein the conversion of the signal portion to a frequency domain representation is performed by means of a Fourier Transform.

11. (Previously Presented) The method as claimed in Claim 9, wherein the musical scale is the Equal Tempered Scale.

12. (Previously Presented) The method as claimed in claim 1, wherein the step of determining a strength associated with the or each musical note comprises the steps of:

determining the amplitude of each frequency component of  
5 the musical note; and  
summing the amplitudes.

13. (Previously Presented) The method as claimed in claim 1, wherein the step of determining the first note comprises the steps of:

for each identified musical note, summing the strengths  
5 associated with the musical note in the data records; and  
determining the first note to be the identified musical note with the maximum summed strength.

14. (Previously Presented) The method as claimed in claim 1, wherein the first note is the tonic of the key.

15. (Currently Amended) An apparatus for determining the key of an audio signal, the apparatus comprising:

an input device for receiving an audio signal;  
| ┌ a data processing apparatus for analyzing each of a  
5 plurality of signal portions of the audio signal to identify a musical note, and where at least one musical note is identified, said data processing apparatus:

determines a strength associated with the or each musical note; and

10 generates a data record containing the identity of the or each musical note, the strength associated with the or each musical note and the identity of the portion;

15 said data processing apparatus, for each of the plurality of data records, ignoring the strength associated with an identified musical note where said strength is less than a predetermined fraction of the maximum strength associated with any identified musical note contained within the data records;

20 determining a first note from the identified musical notes of the plurality of data records as a function of their respective strengths;

selecting at least a second and a third note from the identified musical notes of the plurality of data records as a function of the first note; and

25 determining the key based on a comparison of by comparing the respective strengths of the at least second and third notes; and

an output device for outputting a signal representing the determined key.

16. (Previously Presented) The apparatus as claimed in Claim 15, wherein the predetermined fraction is determined in dependence on the content of the audio signal.

17. (Previously Presented) The apparatus as claimed in Claim 16, wherein the predetermined fraction lies in the range of one tenth to one half.

18. (Previously Presented) The apparatus as claimed in Claim 17, wherein the predetermined fraction is one seventh.

19. (Previously Presented) The apparatus as claimed in claim 15, wherein for each of a plurality of signal portions, in analyzing the portion to identify a musical note, the data processing apparatus:

5 converts the portion to a frequency domain representation;

■ subdivides the frequency domain representation into a plurality of octaves;

for each octave containing a maximum amplitude:

determines a frequency value at the maximum amplitude; and

10 selects a note name of a musical scale in dependence on the frequency value;

and

identifies a musical note in dependence on the same note name being selected in more than one octave.

20. (Previously Presented) The apparatus as claimed in Claim 19, wherein the data processing apparatus converts the portion to a frequency domain representation by performing a Fourier Transform.

21. (Previously Presented) The apparatus as claimed in Claim 19, wherein the musical scale is the Equal Tempered Scale.

22. (Previously Presented) The apparatus as claimed in claim 15, wherein to determine a strength associated with the or each musical note, the data processing apparatus:

determines the amplitude of each frequency component of  
5 the musical note; and

forms a sum of the amplitudes.

23. (Previously Presented) The apparatus as claimed in claim 15, wherein to determine the first note, the data processing apparatus:

■ for each identified musical note, forms a sum of the strengths associated with the musical note in the data records; and  
5 determines the first note to be the identified musical note with the maximum summed strength.

24. (Previously Presented) The apparatus as claimed in claim 15, wherein said apparatus further comprises an output device for sending data corresponding to the key of the audio signal.

25. (Previously Presented) A record carrier comprising software for causing a processor to carry out the method as claimed in claim 1.

26-29. (Cancelled).